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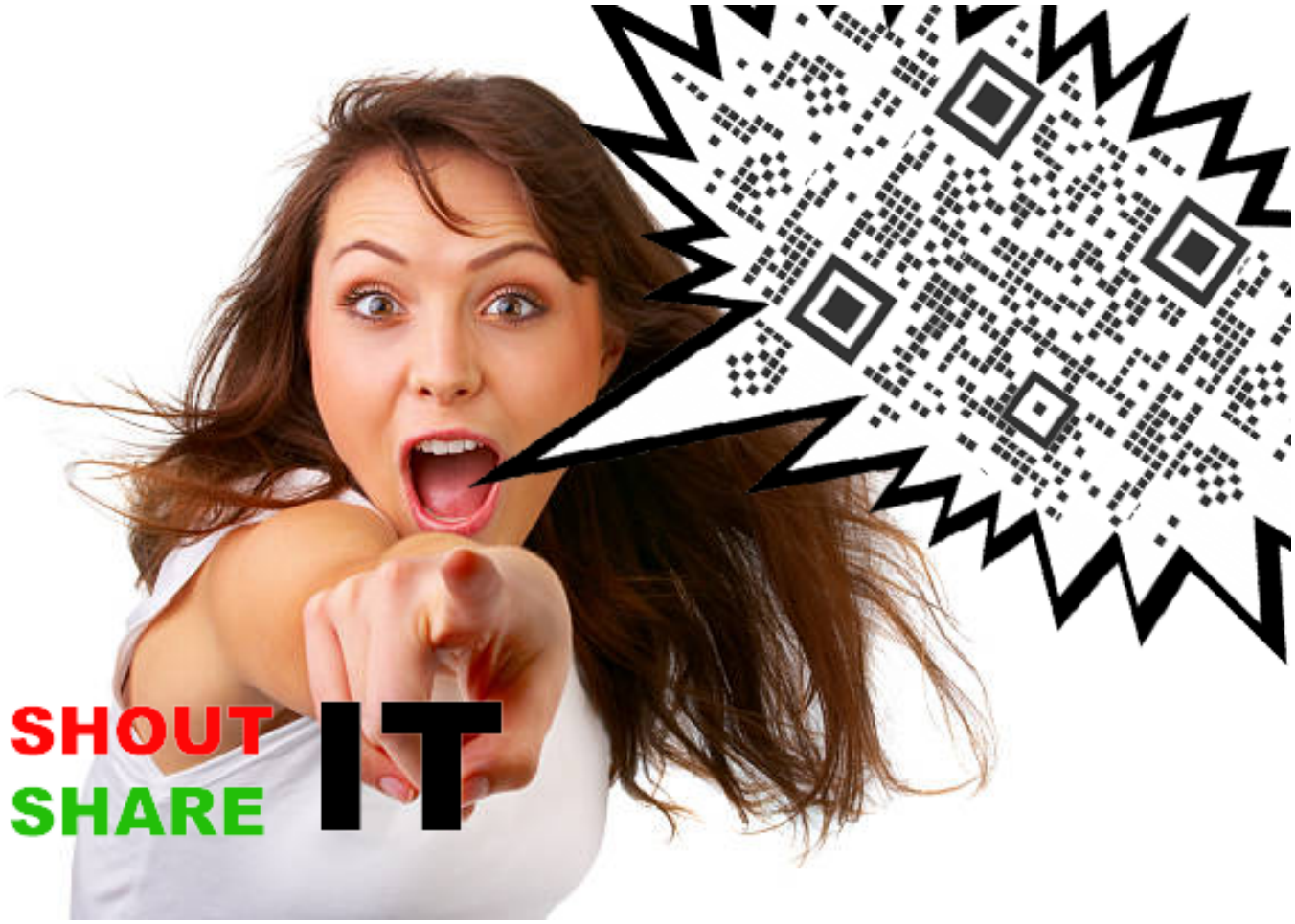
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Collection and Field Note Book

No. 42

(Jan. 29, 1956 - Feb. 24, 1956)

(36627 ---- 36738)

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Occurrence On eroded coral conglomerate near high tide level on lagoon shore.

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Remarks

Pacific Vegetation Project

Date Feb. 8, 1956 Alt. 1-4 m.
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PLANTS OF THE MARSHALL ISLANDS

RONGELAP ATOLL

Calymperes

Locality Gegen Islet

Occurrence Common on branches of trees

Date Feb. 15, 1956 Alt. 1-4 m
Coll. F. R. Fosberg No. 36733

Remarks

Pacific Vegetation Project

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36738

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Jan. 29 - Flight from Washington to Tulsa to San Francisco.

In deciduous forest country a light snow-fall brings out some differences that are much less obvious without it. Open grass and cultivated land stands out sharply in white. Deciduous woods of varying densities show as grays of varying densities, showing relief as a pattern, and patches of evergreen forest are very dark green.

In generally cultivated country large patches of gray may represent hilly or dissected land. Conspicuous examples 17-15 minutes (60 mi.± ?) east of Tulsa around an extensive winding and branched reservoir. Much more wooded land to south of route. Winding dark strips in snow represent ravines and gallery forest along streams.

Dredges (gold?) working east of Tulsa.

1956 Hawaiian Is.

Jan. 30, 1956 — Honolulu
Cultivated on University campus.

36617 Pseuderanthemum carruthersii

probably Sat

" 78 Pseuderanthemum carruthersii
var. atropurpureum

probably Sat

shrub, 6 m. tall; leaves variegated green, gray, and cream; ~~flowers with~~ white corolla with mass of fused purple dots in throat, upper two lobes erect, partly united, lateral one horizontal, lower one pointing downward.

" shrub, 6 m. tall; leaves variegated dark purple, green, gray, cream; ~~flowers~~ deep magenta with white markings, upper two lobes erect, partly united, lateral one horizontal, lower one pointing downward.

1956 Marshall Is.

Feb. 2 — Kwajalein Islet

Hard rain for almost an hour 7:20 – 8:15 a.m.

Ants, very small seen in line climbing coconut trunk. What seem to be same species collected on refrigerator in guest house, attracted by liqueur (Creme de Menthe) left in glasses on top.

Cinnum asiaticum is used generally as ornamental.

Euphorbia thymifolia forms a conspicuous ground cover.

Casuarina commonly planted as ornamental, seems to have come up spontaneously occasionally.

Cyperus compressus still persists near terminal, but uncommon. also Helistropium ovalifol[illegible]

Tridax. Phyllanthus. Bidens Euphorbia thymifolia are very abundant generally, Stachytarpheta indica, also. Pluchea indica has become fairly general, P. odorata has decreased, but is still occasional. Emilia javanica is common. Eclipta alba and Conyza bonariensis seen once each. Cenchrus echinatus common but not abundant.

Seedlings of Phyllanthus and Euphorbia thymifolia very abundant on bare coral sand or gravel.

Golden plovers common, very tame. 7 or 8 tattlers seen near outer beach.

What appeared to be a large wild duck seen at s.w. end of islet in weedy ground. It was brownish, with dark patches in wings. The neck was long and when on alert held very erect (like a crane's). The head and throat with a large dark patch on each side. It flew off over sea and circled around to land again on other side of air-strip.

Two frigate birds seen. Also a flock of noddies after fish in distance. No mynahs seen yet.

"Brown widow" spider still very common around buildings, in lockers, etc. acc. medical officer Cdr. White, who brought a specimen. No bites recently.

1956 Marshall Is.

Feb. 4 – Ribiej I slet

~~Ean~~ In gardens and around dwellings in village.

3 6 6 2	29	Bougainvillea glabra Choisy planted	scandent shrub with axillary spines; bracts dull orange-red.
3	30	Casuarina equisetifolia L. planted	tree about 8 m. tall; said to have been
1	31	Bougainvillea glabra Choisy planted	scandent shrub with axillary spines; bracts crimson-magenta
½	32	Cycas circinalis L. planted	tree 3 m. tall; said to have been brought from Amo. 3 trees seen. "Lankuk"
2	33	Artocarpus altilis (Park.) Fosb. planted	large tree; fruit said to be seedy.
2	34	Digitaria pruriens var. microbachne (Presl) Fosb. common among Trees	
½	35	Artocarpus altilis (Park.) Fosb. planted	large tree; fruit said to be seedy.
3	36	Leucaena glauca (L.) Benth. planted	large clump of shrubby stems 4 m. tall.
3	37	Acalypha amentacea var. wilkesiana (M.-A.) Foslb. planted as hedge	shrub 1.5 m. tall; leaves reddish but very chlorotic.
2	38	Delonix regia (Bojer) Raf. planted	old tree 5 m. tall, wide-spreading, sterile, almost leafless.

Bananas and papayas commonly planted. The papayas fruiting freely. neither especially chlorotic. One Erythrina variegata tree seen in ~~flow~~ flower. Two Pritchardia pacifica trees, quite tall (5 m.), in flower. Clump of Russelia much larger than in 1946, somewhat chlorotic, flowering freely.

1956 Marshalls,

Stachytarpheta jamaicensis still growing and flowering in DeBrum garden.

Breadfruits, said to be of about 6 varieties. Some are in fruit now, a very few fruits almost ripe.

The leaves are badly infested by mealy-bugs.

A pale vermillion Hippeastrum and Crinum zeylanicum grown in gardens.

Of weeds - Phyllanthus amarus is very common, everywhere in vacant lots and sides of paths.

Euphorbia hirta is locally very common and E. heterophylla fairly common occasional in waste spots.

Eleusine indica very common generally in waste spots.

~~Cynodon~~ Cynodon also very common locally forming a thin sod.

Eragrostis amabilis is also very common.

One of the sisters has brought young trees from Honolulu and planted them. They are

Mango (dead)
Figs
avocado
mountain apple
Surinam cherry
guava.

They are only 4 feet or so tall, as yet, and the outlook for them is not good.

They have had abundant rain for a year and a half except for a drought of 2 weeks in a rather dry spell of 2 months. Water cisterns are low and they are having to use well water for laundry. The sisters do not know about any of the wells becoming salt ~~as they~~ during dry seasons.

1956 Marshall Is.

Notes taken from aerial photos in Photo Lab in Kwajalein. (by atolls)

Ailinginae obliques 9-12-55

Knox I. densely wooded.

Islets from Bokonguen around south - extensively developed erosion ramps on seaward side, a little sand on lagoon side.

Islet W. of Bokonguen is a long strip of platform and erosion ramp with a tiny detached sand islet toward lagoon.

Kusbuen I. eastern portion wooded except for s.e. corner, prolongation to west has been stripped clean much as on atoll with a row of small dunes and bushes along lagoon shore.

Ribinoen I. - wooded, possibly a very few coconuts.

Eninetakken I.(?) scattered trees on grassy island. (Perhaps is actually islet east of Eninetakken)

Enibuds I. - largely planted to coconuts.

Mogiri I. - wooded.

Manchumeken I. - wooded. Lifo I. - (12-9-55) - densely wooded, large trees seem to be Pisonia - show a soft, fine texture but in large masses. Some coconuts. (taken at 800', n. to. end of I.)

1956 Marshall Ln.

Feb. 5 - Nursery in old terminal.

Plants growing in quantity in pots and frames. some sheltered, some not, mostly healthy.

~~Hyb~~

Hibiscus (ornamental hybrid)
Cassia alata
Iolandra sp.
Acalypha wilkesiana v. villosiana
Codiaeum variegatum
Pisonia grandis
Polyscias scutellaria
Gardenia jasminoides
Polyscias guilfoylei
Euphorbia pulcherrima
Nerium sp.
Alocasia sp.
Scindapsus aureus
Pseuderanthemum carruthersii
var. carruthersii and var. atropurpureum
and var. with yellow veins
Begonia sp.
~~Hyb~~ Strelitzia reginae
Cordyline terminalis
Polypodium scolopendria
Allamanda cathartica var.
Hibiscus mutabilis
Polyscias trierchlesta
Pentas lanceolata
Vanda Miss Joachim
Gomphrena globosa
Angelonia (big purple variety)
Zinnia elegans
Carica papaya

Kuwajaleen

~~Megaskepasma~~

Leucium postulacastrum
Hedychium coronarium
Coldenia hyssopifolia
Canna indica
Brassaia actinophylla
Thespesia populnea
Mirabilis jalapa
Scaevola ~~taccada~~ sericea
Duranta repens
Coccoloba uvifera
Hernandia sonora
Ravenala madagascariensis
Barringtonia asiatica
Musa sapientum
Tabernaemontana coronaria
Elongate Dracaena-like
or Cordyline-like plant
with small lanceolate lvs.
Alpinia purpurata
Aleurites moluccana ?
Bougainvillea spectabilis
Dieffenbachia maculata
Pritchardia sp.
Caladium bicolor
Phoenix sp.
Casuarina equisetifolia
Ananas comosus
Asplenium nidus
Cibotium sp.
Nephrolepis sp.
(Phajus ?
Jasminum pubescens

Phyllanthus niruris
Delonix regia
Catharanthus roseus
Coffea arabica
Cinnum asiaticum?
Rhoeo ~~discolor~~ spathacea
Artocarpus ~~incisa~~ altilis
Plumeria rubra
Plumeria sp.
Cocos nucifera
[aracoid palm?
2 evident. shrubs
prob Anthurium (common red)
and one with large
scalloped lvs.
Barleria cristata (white)
Calophyllum inophyllum
Semphis acidula
Hemigraphis repens
Morinda citrifolia
Quetlarda speciosa
Erythrina indica:
Pandanus tectorius
Sansevieria (broad, mottled)
Bryophyllum pinnatum
Euphorbia heterophylla
Hibiscus schizopetalus
Vitex trifolia
Schinus terebinthifolius
Coleus scutellaria
Polyscias fruticosa
Polyscias sp. (crimped)
Ruellia longifolia
Tabebuia pentaphylla

Pedilanthus tithymaloides
Fibrious liliaceus
Clerodendrum inerme
Murraya paniculata
Asparagus sprengeri
sml Canavalia sp.?
Thrinax parviflora
Euphorbia (large, spatulate
fleshy lvs. spiny, stout stem)
Ardisia? leathery leaves,
most depressed globose black
fleshy fruit about 1 cm. long.
Dieffenbachia picta
Dieffenbachia gangetica
~~"Tupto alamanda~~
Cryptostegia grandiflora
small Kigelia or Spathodea
Jatropha multifida
Acalypha hispida
Nerium oleander
Russelia equisetiformis
Dbly Tripl Anthurium sp
Tripartite
Osteomeles anthyllidifolia
Persea americana
Ochrosia oppositifolia?
Ficus casei
Pilea microphylla
Podocarpus sp.?
Cucumis sativus (1 pl.)
~~Rhoeo discolor~~
Philodendron oxycardium
Macadamia ternifolia
Cucurbit?
sm sp large orchid Epidendrum?
Pelexone guttata

1954 Marshall Is.

Feb. 5 - Kwajalein Islet, weedy edges of air strip and roadsides.

3	36639	Bidens pilosa var. radiata Sch.-Bip.	rays white, disk yellow.
		abundant locally	
3	40	Mimosa pudica L.	leaves sensitive, very
		very local on disturbed ground	chlorotic; flowers lavender.
3	41	Paspalum distichum Nichx. det. A. Chase	culms spreading
		very local on disturbed ground	
3	42	Lepturus repens var. subulatus Trin.	spreading
		around old building	
3	43	Phyllanthus amarus Schum. & Thon.	leaves somewhat glaucous
		very abundant	beneath, greener where
			earth is piled up, yellowish
			on level ground.
3	44	Paspalum fimbriatum H.B.K.	culms
		common locally.	spreading
3	45	Portac Communis Vaud. det. Drake	dark green
		abundant on bare coral sand	erect, flowers white
4	46	Conyza canadensis (L.) (Cronq.)	
		abundant locally	
1	47	Euphorbia ~~prostrata Ait.~~ thymifolia L.	purplish, prostrate.
		rare, in crack in old concrete	
	47a	Uromyces proeminens (DC) Pers. det. D.P. Rogers	
		Parasitic on Euphorbia thymifolia L. 36647	

Feb. 5 - Eberye Islet -

Beach on south end, considerable pumice, rather fresh looking, has come ashore fairly recently.

Bag 300.

Saw two black-naped terns flying on lagoon side of islet.

1956 Marshall Is.

Feb. 7 - Rongelap I.

The beach ~~in front~~ in front of the village is sand and small gravel West of this is a rocky shore except for one short stretch of beach, as far as shore can be seen. Above the rocky platform is a storm beach, ~~or beach~~ the top of which are scattered deciduous bushes in the edge of the coconut plantation. Also a few Guettarda and Pandanus.

No birds seen while going ashore, few thereafter. Plane anchored about 200 yards from beach - within half an hour flies had found it. The flies here are a singularly persistent lot.

Plantation back of village has the trees rather widely spaced, crowns nowhere touching. The bases of the trees are almost all burned. The ground is generally grass-covered but is

becoming generally overgrown with thickets of Clerodendrum inerme and seedling coconuts 1-2 m. tall. Sida fallax is scattered here and there, with some patches of solid stands of it on sandy soil. Morinda citrifolia is unusually abundant.

The soil in the plantation is mostly dark, of the Arno atoll series. Some of it has a very high humus content. There are some Pisonia trees locally, and burned stumps and logs of others. This circumstance rather supports the suggestion that the Arno atoll series may be derived from the Jemo series. No hardpan found, but little time spent in looking for it.

East of the plantation is a low forest, ~~of~~ about 4-6 m. tall, of Morinda, Guettarda, and some Pisonia (mixed appearance on photo).

East of this, to the coast, is a scrub of Scaevola, starting about 4 m. tall, sloping down to 2 mm. at the beach. This is conspicuously wind scalloped, and is fringed by a growth of Tournefortia creeping down the beach. The east beach is of sand and gravel. Bag 302 is sand from just above high tide level. The erosion ramp here is very rough (showing black & dark on photos). The upper part is old, much eroded beach-rock. Bag. 301 is old, much eroded beach-rock with an algal layer.

On the beach are large quantities of pumice pebbles, in places actually covering the sand, both on the upper parts of the beach and on the flat well back of the top of the beach. It is mostly small rounded fine-grained pebbles, but some larger pieces are much more fresh-looking (possibly from Nan Benedicto). Some of it is plain [Bag 305]

but some pieces have small corals growing on them. These should be a factor in the long-distance dispersal of organisms.

(Bag 304)

The "elbow" of the islet is lined by a boulder-cobble ridge, the fragments well-rounded. The platform protrudes beneath this in many places and forms a rough erosion ramp with considerable abrasion evident.

On the windward side the Scaevola scrub tapers down to the top of the beach. On the leeward side there is a flat of cobbles sandy with scattered bushes, mostly Scaevola, some Messerschmidia, some Guettarda, small patches of unhealthy-looking Pemphis.

Back of this is mixed forest of Messerschmidia, Guettarda and Pisonia. Along the beach Scaevola seedlings are very common in ~~bases of Pemphis and Messerschmidia bases~~. ~~Various seedlings are~~ open gravel and sand.

1956 Marshall Is.

Feb. 7 Rongelap Islet
back of village in
coconut plantation

36648 Digitaria pruriens var. microbachne (Pz Feb. 51 PR 615.) on black soil in small opening in — (voucher for NRDL sample 100)

✓ 49 Thuarea involuta (Forst.) R.a.S.
on black soil, forming ground cover in — creeping. (voucher for NRDL sample 101)

½ 50 Pisonia grandis R.Br.
small group in — tree 15 m. tall, trunk 25 cm. thick. (voucher for NRDL sample 102)

✓ 51½ Guettarda speciosa L.
common in — tree 10 m. tall; flowers white, fragrant, limb of corolla unusually small, about 1 cm. across. (voucher for NRDL sample 103)

same - south side of islet,
just back of beach ridge
on rocky flat, Lhirya soil.

✓ 52½ Lepturus repens var. subteretiusculus Fab. — tufted. (voucher for NRDL sample 104)
abundant on

✓ 53½ Boerhavia tetrandra Forst. f. — stems ascending, green; leaves green, thick; flowers white. (voucher for NRDL sample 105)
local on

same - coconut plantation
west of village.

54 Pandanus tectorius — tree 4 m. tall, fruit cluster oval-oblong, flesh sweet. (voucher for NRDL samples 500, 501)
common in

1956 Marshall Is.

Feb. 8 - Rongelap Islet

36495 Cucurbita maxima L.
spontaneous around village

✓ 56 Carica papaya L.
2 common around village.

57 Crinum asiaticum L.
2 planted around village

same - 3/4 mi. s. of village

✓ 58 Portulaca samoensis v. Poelln.
3 on sandy soil in grassy opening in coconut plantation

59 alga
growing on soil surface.

60 alga
on eroded coral conglomerate near high tide level on lagoon shore.

Animal lots. Feb. 7.

A 4 - one large hermit crab found in plantation.
2 ghost crabs from top of sand ridge along lagoon (nocturnal)
several Coenobita found eating Pandanus fruit at top of lagoon beach.

5 - 2 grasshoppers attracted to light

6 - ants from ground.
roach from ground.
fly attracted by sweat (abundant and very persistent)
weevil picked up on clothing after going through brush.

prostrate extensive vine; leaves flecked with gray, flowers orange-yellow. tree 3 m. tall (others much taller); flowers cream white. flowers white except for purple filaments.

leaves fleshy, root enlarged, fleshy. (voucher for NRDL 107)

Birds seen Feb. 7
several chickens
3 noddies flying out to sea.
3 Turnstones seen on south beach.

toward evening
2 noddies and 2 turnstones flying over lagoon.

otherwise birds were conspicuously absent.

Feb. 9 Rongelap Islet.

Along the lagoon shore the rock platform protrudes for some distance west of village at about 1.7 m. above low tide level. It ends in 4 terraces, very narrow, at about 3-6 dm. intervals vertically. The uppermost terrace scarcely shows in some places, locally it includes a small series of beach-rock dipping away from lagoon.

The margins of the other terraces are somewhat undercut and the layers they represent are evidently peeling off as undercut by lagoon waves. The second from the top is flat and finely pitted. The third is very rough. The lowest is uneven but edges and protrusions are rounded by abrasion. This lowest is slippery with an algal fur. The third is dark green with a fine algal fur. The two uppermost are the usual blue-gray color. Few animals of any sort are in evidence at this

time (9:30 a.m.).

There is a well developed sand ridge along the lagoon shore.

Bag 306 is a piece of beach-rock from the land-ward dipping series mentioned on p. 26.

Feb. 9 - Eniaetok?

(Eniaetok means long island, Kabben I. means main island Bock I. or Bokl. " sand island acc Matan)

Lagoon beach on north part of islet lined with old beach rock, much eroded, in places well above high tide level. Back of the beach here is a double beach ridge perhaps 3-4 m. high of sand and fine gravel. Bag 310 is beach sand from the lagoon beach here. Bag 309 is beach sand from the seaward beach, the finer component only, as from place to place it varies to coarser with more shell fragments.

Bay 308 contains representative material of large quantities of several kinds of pumice lying on the seaward beach.

This seaward beach is of sand above a very rough erosion ramp eroded into remnants of a protruding platform.

In the northern part of the island there is much grassy terrain with sparse coconut, Morinda, and patches of Cordia. The coconut trees are burned at the base.

Feb. 9 - Eniaetok Islet

36661 Pandanus tectorius Park. top of seaward beach

62 Rigitaria pruriens v. microbachne (Presl) Fosb. Opening in coconut grove back of lagoon beach

Along seaward side is beach rock with scattered pandanus, edged with Suriana most of the latter is dead.

The Pandanus (enwan) obviously reproduces vegetatively, as in several clumps of trees 4-5 m. tall the bases are connected by stolons a foot or so off the ground, sagging, supported by stilt roots.

In places the platform protrudes from under the sand at extreme high tide level. It is very rough, has small planes, solution basins, much pitting and removal of layers by undercutting and collapse.

clumps of small trees connected by "stolons", horizontal stems held above ground by stilt roots; heads globose. (Voucher for NRDL sample #111)

1956 Marshall Is.

√36663 Portulaca lutea Sol.
opening in coconut grove
back of lagoon beach.

64 Leptunus repens var. oceanicus Bk
back of beach ridge in
opening in coconut plantation

Feb. 9 - Kabelle Islet
Land flat back of lagoon
with scattered Scaevola
Guettarda, and Messerschmidia
bushes 2-3 m. tall, with
bare sand between with
a conspicuous algal crust,
scattered tufts of Leptunus
and a few plants of Boerhavia
tetrandra (this with
oblong-oval glossy leaves,
pink flowers) plants notably
infected by albugo.

In openings of the
coconut ~~grove~~ and thicket
abundant plants of another form
(this with pointed dull-
surfaced thinner leaves and
white flowers - B. diffusa), plants
less infected but some
infection apparent.
A few apparent hybrids seen.
The openings are
mainly grassy, with
many dead Suriana bushes,
no live ones seen.

(voucher for NRDL sample ~~#~~ 110)

(voucher for NRDL sample # 109)

The coconut trees are
very yellow. In the
central part is rather
loose pisonia forest,
almost leafless,
surrounded by open
scrub forest of ~~Messerschmidia~~
Messerschmidia,
Guettarda, Scaevola,
small Pisonia. Sida
fallax common locally.
Ground cover of 2 species
of Boerhavia, Leptunus,
Trumpetta, locally Fimbristylis
and a very little Portulaca lutea.
This section obviously
used to be the lagoon ~~side~~
shore, as there is a high
sand ridge with a
depression behind it.
The wide sand flat
with scattered bushes
is now between it and
the lagoon.

1954 Marshall Is.

Next to seaward beach is rather fine beach sand, the margin wind-scalloped.

On the seaward beach is considerable pumice. There is some, also, on the sand flat back of the lagoon beach.

In the Pisonia forest are poorly developed ferro soils. No hardpan, at all, was seen.

There are one to several inches of humus, often filled with fine living roots (Bag 311-1, submitted to NRDL as sample #120). Underlying this in many places is a dark sandy layer a few inches thick (Bag 311-2, submitted to NRDL as sample #121). In places where humus is thin this dark layer may be lacking. Very, below down is pale sand (Bag 311-3, submitted to NRDL as sample #122). I have submitted for analysis.

Many Fregis alba and a few Anous stolida seen.

In Pisonia trees were 5 Anous stolida nests, loosely constructed from dried Messerschmidia fruiting inflorescences (eggs found by other members of party); a few Anous tenuirostris seen and several nests - smaller, of Messerschmidia leaves and compacted with excrement.

1956 Marshall Is.
Feb

July 9 - Kabelle Islet
open sand flat with
scattered bushes.

Orchid
64, 66A
36667½ Lepturus repens var. septentrionalis Fot.
common

✓ 68 Boerhavia tetrandra Font.
3 generally common on island

✓ 69 Albuga platensis
3 commonly infecting
Boerhavia Tetrandra (E 36669)

same - open Pisonia forest

70 Boerhavia diffusa var.
common

✓ 71 Fleurya ruderalis (Forst.) Gaud.
3 locally common ex Wedd.

✓ 72 Pisonia grandis R.Br.
4 dominant tree

F.Jr.
July 9 - flight over western
part of north reef of Rongelap -

Ageien Islet - seaward
third is Pisonia forest, the
rest seems to be a scrub
forest with a few isolated
coconut trees on lagoon side.
Suriana(?) dead. (actually, Cordia subcordata)

tufts. (voucher for
NRDL sample #113)
prostrate, leaves fleshy,
glossy above, flowers pink.
many plants infected with
albugo. (voucher for
NRDL sample #115).
causing branches to be
erect, with shortened
internodes.

prostrate, leaves dull
above, thinner than in
B. Tetrandra; flowers white.

erect, stems reddish,
flowers greenish.

shrub 2 m. tall, flowers green
(only this one seen flowering,
others up to 10 m. tall), almost
leafless at this season.
(voucher for NRDL sample 116).

next islet west - beach rock
scrub with scattered
Pisonia. several coconuts
on lagoon side.
One of islets on leeward reef -
no platform but much
beach rock.
Another leeward islet

1956 Marshalls.
Rongelap atoll.

has typical crescent shape but with two curious strips just to north and to lagoonward. There are possibly remnants of platform but should be checked on a photo or on ground.

Islets on east reef south of entrance are sand spits with erosion ramps, somewhat vegetated, especially along lagoon shore.

Those just north of Rongelap I. have considerable platform exposed to seaward.

Kwajalein atoll from air —

Second break in reef west of Roi Islet has a small exposed sand-bank well within lagoon opposite it.

The fourth break has a considerable system of triangular or T shaped reef patches inside but not quite so regular as that inside ~~the pass~~ Broch channel on Ujae atoll. Several passes on south reef have remarkable patterns of

Feb. 9 – Kwajalein Islet.

Interviewed Chief Lee, Navy Chief in public works dept. who has charge of nursery and truck garden.

He says that a little commercial fertilizer has been used, but not much. Soil has some sawdust and algae swept from catchment (Nostoc mucorum?) mixed with it before planting. Planting is in raised beds (6 inches). A little commercial fertilizer before planting. Mulch of algae from catchment ~~beds~~ if plants turn yellow. Fertilize a little when tomatoes start flowering, mulch with grass cuttings when plants are 6" high. (This in garden).

In the garden are
- Citrullus vulgaris
- Passiflora edulis
- lettuce, tomatoes, zucchini, persian melon, honeydew melon, turnip, radishes, wong bok, sweet potato, cucumber,

reefs inside them, should be photographed.

1956 Marshall Is
Kwajalein atoll

carrot, green onion, parsley, celery, pumpkin, sweet corn, cabbage, bell pepper.

The principal problem now is the abundance of root-knot nematodes (Heterodera marioni ?).

The plants in the nursery have been fertilized a little with commercial fertilizer.

In addition to plants listed on pp. 12-15 the following were observed:

Araucaria excelsa (?)
"bamboo tii" the elongate Cordyline noted on p. 12.
"coral tree" from australia.
Cerbera sp.
Ipomoea tiliaba (or purpurea ?)
Petraea volubilis
Argyreia ? ("small-flowered woolrose")

Mentioned two insect pests: Philippine wood-borer in Philippine Mahogany and bamboo-beetle!

Feb. 10 - flying over atoll - noted.
a reef patch inside the pass to the left
leeward (west) reef margin drops off very abruptly to great depth.
good surge channels on south reef margin opposite lips of islet.
Northwest corner of reef has a great lobe of reef (or sand ?) extending into the lagoon.
On the north reef, near the middle, are a couple of small strips of beachrock 1/3 the way from lagoon to sea, and many small sand and gravel bars exposed at lowtide along lagoon margin of reef, especially on the sand apron.
The inner northwest islet has conspicuous beachrock along lagoon shore, erosion ramp on outer shore.
The outer islet here has an erosion ramp but no conspicuous beach-rock.

Copra bus 19-11

1956 Marshall Islands

Feb. 10 - Ailinginae, Lifjelle (H.O. chart 6034) has Lifo the wrong shape. Actually the shape given for Machinikon I. is about right for Lifo. Machinikon is more irregular.)

Birds seen here were 2 bristle-thighed curlews, hundreds of Fregata alba, a few Anous stolidus, a few Anous tenuirostris and 1 ruddy turnstone.

Much of this islet is covered by a scrub forest principally of Guettarda, Messerschmidia, Scaevola, Pisonia and Cordia. In openings are Leptenus, Triumfetta, with some Boerhavia and Portulaca. There is very little Pandanus here.

Along the lagoon shore and hooking around both ends, and to some extent on seaward side is scrub. On the lagoon side it is mostly Scaevola about 7 m. tall, a belt of it a few m. wide,

interlocked and dense. Locally there is some Guettarda and Cordia in this. At the ends of the islet the scrub is open, and where it exists on the seaward side, more open. ~~Here~~ On the ends are more bushes of Cordia, most of it healthy, but some bushes are dead. No Pemphis anywhere. A few bushes of Terminalia.

On the seaward side is a cobble and boulder flat, some of it open, some covered by sparse scrub of small trees. Under these are Fleurya and Boerhavia tetrandra plants. The ~~rock flat~~ cobble flat extends well into the taller forest.

On the lagoon side are openings which may be bare sand or grassy. Leptenus dominant but in discreet tufts. Some Boerhavia, no Fleurya.

On the outer beach is much pumice of two kinds (Bag 3:4).

Along the east half of the seaward side are two large series of old beachrock, separated from shore by water at high tide. West of this are rocks which seem to be remnants of an old platform in the last stages of erosion. However, this was not examined at all carefully and may well be reef debris torn by a storm out of the breach in the reef edge just opposite. ~~Along~~ The lagoon shore is largely lined with beachrock, mostly rather fresh-looking, all between undercut and being eroded, especially by abrasion. Bag 312 is a sample of the youngest appearing part of this rock.

Part of the interior of this islet is covered by taller forest of Pisonia up to 25 m tall and Cordia up to 12 m. or more. Locally one or the other is more abundant. The Cordia, in addition to growing

upward and forming a secondary canopy sends out twisted low branches running over or near the ground. These form a tangle in places that is exhausting to penetrate and traverse. There is little undergrowth where this is thick, but in ~~the~~ openings and thin places Wedelia forms a blanket.

Around openings Ipomoea tuba is very common festooning trees and bushes.

There are several small groves of coconuts in both the scrub and the taller forest. Under one of these in the taller forest is a good growth of Morinda saplings, some Wedelia and Thuiaria, ~~none~~ ~~Digitaria~~, and, as usual, Ipomoea tuba.

In the interior is a pronounced ridge ~~3~~ at least 3-4 m. tall. This is sand but with a high proportion of pebbles in the surface foot. The profile here is represented by bags 313.1-5.

1956 Marshall Is.

The soil in this Cordia-Pisonia forest is a peculiar brown loose granular material in most places.

There is no well developed humo soil (though a phosphate pebble was picked up on the beach). Some of the soil under the Pisonia trees have an inch or two of new humus, but no hard pan.

Perhaps the proportion of Cordia leaves is such that saprophytic activity is encouraged such as to destroy or alter the humus.

Feb. 10 – Lifo Islet

J6473 Pandanus tectorius
just back of lagoon beach in scrub, rare on islet.

v 74 Allophylus timorensis (DC.) Bl.
5 single clump in forest in center of islet.

v 75 Polypodium scolopendria
3 very local in scrub forest.

clump of stems 5 m. tall, fruit from ground, red
1 ripe ones seen on tree
trees 3-4 m. tall, flowers white; fruit immature.

rhizome creeping on
1 surface of ground.

1956 Marshall Is.

✓	74676 4	Portulaca lutea Sol. occasional in sandy openings.	small tree 4 m. tall. leaves fleshy; flowers white, fragrant.
✓	77 3	Scaevola serica Vahl Dominant in scrub ~~and~~ at top of beach, and to some extent inland.	small tree (others up to 20–25 m. tall), sterile. (voucher for NROL sample # 26)
✓	78 3	Leptonus repens ~~var. septentrionalis Fosb.~~ var. septentrionalis Fosb. scattered tufts in sandy openings.	small rounded tree 5 m. tall. (Voucher for NROL sample = 130).
✓	79 1	Messerschmidia argentea (L.f.) Johnst very common tree in scrub forest.	prostrate, flowers yellow.
✓	80 3	Pisonia grandis R.Br. Co-dominant tree in forest with Cordia.	shrub 2 m. tall.
✓	81 3	Guettarda speciosa L. common in scrub, scrub forest and tall forest,	
✓	82 2	Triumfetta procumbens Forst. common in open forest and spemgp.	prostrate; flowers pink. (voucher for NROL. sample # 27)
✓	83 4	Terminalia samoensis Rech. rare in scrub	
✓	84 1	Albizzia platensis parasitic on Boerhavia tetrandra (36485).	
✓	85 1	Boerhavia tetrandra Forst. f. common on sand flats (also on cobble, boulder flats)	prostrate; flowers pink. (voucher for NROL. sample # 27)
	86 1	Polyporus curtisianus on dead Pandanus trunk-	

stems ascending. (voucher for NROL sample # 128)

rounded bush 3 m. tall, flowers white.

(First fungus collected on Ailinginae)

1956 Marshall Is.

J 96097 Morinda citrifolia L.
11 common around coconut groves, not seen elsewhere on islet.

89 Digitaria pruriens var. microbachne
very local, in one small opening in forest.

J 89 Cassytha filiformis L.
5 occasional, parasitic on Guettarda.

J 90 Suriana maritima L.
3 common locally as scrub

91 Tournefortia argentea (Forst.) Gmel. ex Vahl.
3 common on rocky ground under trees.

J 92 Tacca leontopetaloides (L.) O. Kuntze
3 common in forest and coconut groves.

✓ 93 Ipomoea tuba (Schlecht.) G. Don
3 common in openings

✓ 94 Wedelia biflora (L.) DC.
3 common in openings and edges of forest.

✓ 95 Cordia subcordata Lam.
4 co-dominant in forest with Pisonia grandis.

✓ 96 Thuarea involuta (Forst.) R. & S.
3 dominant in patches in open forest

✓ 97 Clerodendrum inerme (L.) Gaertn.
b common in small openings in forest

Ailinginae atoll

shrub 2 m. tall; flowers white.

(Pal) Fab. (recorded for MRDK sample #123)

stems greenish yellow.

shrub 1.5 m. tall; flowers yellow.

stems red, fleshy.

inflorescence of specimen from another plant with dead leaves.

— Twining vine, climbing over trees.

— Tangled strongly aromatic herb; hayflo. yellow.

tree 10 m. tall, sterile, with elongate, twisted, tangled lower branches.

— creeping, forming low ground cover.

tangled shrub 1 m. tall, sterile.

1956 Marshall Is.

Feb. 11 - Kwajalein atoll from air - Eniwetak Islet seems to have changed shape somewhat since 1952. It has a short sand spit to the south now and to be roughly triangular. (Check on recent and old photos if possible)

Bigej Islet - the strip across islet is completely green now.

Next islet south is mostly covered by mixed forest, the next one by tangled scrub.

On south reef are several islets that look from air like Fanoa, with more or less completely enclosed lagoonlets.

Rongerik atoll

Feb. 11 - Eniwetak Islet, Rongerik atoll.

This islet has an enormous sand ridge along the lagoon beach, up to 3 m. high, at least, in places.

Much of the central part of the islet is covered by Pisonia - Cordia forest. The Cordia is bleak at the tips, the Pisonia leafless and in flower.

Birds seen were quite a few Fregis alba, two Arenaria interpres, one bristle-thighed curlew and two tattlers.

Got a big beach gecko from the construction crew working on ~~sta~~ rebuilding the radio station - They have bull-dozed a wide strip ~~through~~ across the center of the islet where the radio station is being built, and have made a road the full length of the seaward side.

1972 Marshall Is

Eragrostis amabilis is the most abundant plant in the bare area, but is mostly dry.

On the seaward side the erosion ramp is very broad and flat, almost worn down to base-level. Rubble tracts lie on it. Abrasion pools with rocks in them, like pot-holes but sand shaped, with sand and silt in the bottom, are a common feature of this ramp.

Pemma found in rotten beach but in moderate quantities (Bay 315).

Along the lagoon shore is an almost continuous series of beach-rock, some of it quarried by lagoon waves and thrown up in heaps on the beach.

At the west end is a very thick series of seaward-dipping old beach-rock somewhat inland forming a [illegible] cuesta. Inside this is a very [illegible] with several algae.

Construction of some sort is going on at each end of the islet as well as in the middle.

The vegetation on the sand ridge is a mixed scrub forest, open in places.

Pandanus is rare.

The Cordia forest - with scattered Pisonia - is about 3 m. tall, the tops bare of leaves and terminal branches bare, a few spitting out weak sprouts.

The Scaly forest has typically tangled lower branches, open only where there are numbers of Pisonia, no undergrowth except a few Pisonia sprouts and an occasional Ipomoea tuba. There are many tiny Cordia seedlings locally, with from 2-5 leaves, no larger ones seen.
(This description from eastern half of islet).

On the western part of the islet the Cordia is now more thoroughly dead

1953 Marshall Is.

than eastward of the center. The Pisonia is almost seedless, but mostly in flower. Here Thuarea, Boerhavia tetrandra, and Lepturus form a continuous ground cover locally.

The soil in this Cordia forest is different from that seen elsewhere ~~in the~~ ~~Carolines~~ in the Marshalls (except on Lifo). Ailing. It has a surface layer of a brown fluffy loam several inches thick, then a gray fine sand. The subsoil layer is a lighter more reddish brown than on Lifo. This must constitute a new soil series, but time was not available to study it adequately or to collect a good profile.

The west end of the islet is a continuous solid Pisonia forest. Here are poorly developed loose soils with no hardpan but with 2' of raw humus in places. Sand has been in over the ground in most places and still looks quite fresh. In the eastern part of this forest is a dense ground cover of Thuarea

1956 Marshall Is.

Feb. 11 – Eniwetak Islet

'36693 Sida fallax Walp.
very local in scrub front
~~Shore~~ slope of lagoon
beach ridge.

✓ 99 Eragrostis amabilis (L.) W. & A.
3 common in cleared strip.

36700 Boerhavia diffusa ? var.
common in and around
cleared strip, local
elsewhere.

✓ 01 Pisonia grandis R. Br.
3 very common in forest
locally dominant.

✓ 02 Allyogo platensis
3 parasitic on Boerhavia
~~03 Boerhavia tetrandra Forst.~~

✓ 03 Cordia subcordata Lam.
3 dominant forest tree,
seedlings abundant
under trees.

✓ 04 Tournefortia argentea (Forst.) R. & S.
3 locally common,
forming ground cover
under trees.

05 Pandanus tectorius Park.
rare in cordia forest

✓ 06 Lovlanea amara Lam.
3 small colony in Pisonia forest

07 (blue green alga) Phormidium crosbyanum Tilden det.
on bottom of brackish pool

shrub 0.5 m. tall, flowers
clear orange, (one ~~head~~
in center)

prostrate, leaves dull
green above, white beneath;
flowers white. Not
conspicuously infected
by allergs. (voucher
for NRDL ~~sample~~ #
tree 12 m. tall, flowers
green, fragrant. all trees
seen were in flower.
(voucher for NRDL sample # 131)

Tetrandra

tree 8 m. tall, sterile.
tips of branches dead.

prostrate, forming
a loose mat. (voucher
for NRDL sample # 136.)

tree 10 m. tall, young
fruiting heads globose
(Phalangea picked from ground)
small trees 1-4 m. tall.

Drift

gelatinous layer,
brownish green

1950 Marshalls

36709 (green algae)
on sides of dredged pool

Feb. 12 - Kwajalein atoll,
Kwajalein Islet

09 Vitex trifolia L.
3 planted as ornamental

Feb. 13 - Utirik atoll,
Utirik Islet

Open coconut land back of village to northeast has scattered Pandanus and ground-cover principally of Digitaria, with some Eragrostis, Cassytha, Triumfetta, Lepturus, Fimbristylis, Tacca. Young Tacca shoots just coming up, 2-7 dm. tall.

Some old taro-pits along trail back of village with coconuts at least 50 years old in bottoms.

There has been much old burning in plantation east of village, but few trees badly burned. West of village one area has trees killed, apparently by fire.

Rongerik atoll

bright green.

shrubs up to 1 m. tall, some leaves trifoliate or some bushes, flowers lavender.

There is practically no undergrowth in these plantations - some scattered bits of Pulasa and several thickets of Cordia (mostly dead and covered by Ipomoea tuba - probably Ipomoea), Scaevola, Guettarda, etc.

Many of the coconut trees knocked down by 1952 typhoon have turned up at the tips and are growing. The others are pretty well rotted.

Along a path to south of village is planted what appears to be Crinum asiaticum. It has white flowers, lobes longer than tubes, ~~the~~ rather crispate margins

1951. Marshall Is.

bracts white, filament purple, anthers commonly bent in middle. fruit purple.
Probably a var. of Caviation but certainly distinct.

Arno atoll soil profile from back of village in coconut plantation:
0-13" fine powdery loam with some coral gravel 7YR-2/0 (bag 316-1, extra bag for C^{14} analysis)
13-18" firmly caked crumbly loamy sand, mottled gray, about 10YR-6/1 (bag 316-2)
18-43+" loose foraminiferal sand 7YR-8/4, with loose fine gravel in lower part.
(bag 316-3, extra bag for C^{14} analysis)
(bag 316-4 is gravelly portion)

Along south beach Suriana is abundant, growing in sand and gravel, very few dead or partly dead plants seen

Utirik atoll
bag 317

Suriana is much more abundant here than in 1951 but by no means as much as on Rongelap. Ailinginae and Rongerik. Seedlings of Scaevola, Lepturus and Messerschmidia common along beach down to water line, Guettarda seedlings back of beach on sand.

Along the west part of this south beach is a high crests of old beach-rock, reaching above high tide level but swash of waves running over top here and there. The water from this runs along back of ~~the~~ crests, carrying sand with it, but escapes through a breach in beach rock. Opposite this breach is a semi-circular indentation in beach, surrounding a pond

1956 Marshall Is.

Westward, beginning about even with the end of the coconuts, a great rubble tract lies, back of the cuesta, partially submerged at high tide. Westward this thins out and the rock platform shows at the surface in the outer 50 m. of the spit. The cuesta has several more breaks here.

On the other side of the spit, the dense ridge along the lagoon shore is broader, somewhat lower, more firmly held by Leptinia and Cassytha, with a wider growth of bushes than in 1951. Some of the larger of these are dead.

Westernmost extreme of plantation on spit has trees with very small crowns, no nuts, mostly with dry flowers. Few bushes on ground. Signs of burning at base.

On seaward side of Islet proper is a very rough erosion ramp with pot holes and abrasion channels. Capped with a very old layer of beach-rock! a sand beach behind this.

Birds seen:
several golden plovers in plantation.
one created tern on seaward side.
one plover and one turnstone together in coconut grove
8 turnstones on south beach.
another flock in open part of spit back of lagoon beach ridge
1 wandering tatler on rubble tract on spit.
plovers in spit.
1 whimbrel (? identified by call) and 3 bristle-thighed curlews seen in interior of spit.

some figs, chickens, and dogs seen, one mandarin duck.

Young breadfruit trees common few old ones seen, a few fruits almost ripe.

1 Musa sapientum seen but not collected.

1956 Marshall Is.

Feb. 13 Utirik Islet

✓ 36710 1 Asclepias curassavica L.
planted around buildings and cemetery.
corolla vermilion, crown orange.

✓ 11 2 Russelia equisetiformis Schlecht. & Cham.
planted around out-building
flowers scarlet.

✓ 12 2 Lepturus repens var. subulatus Forst.
very common on outer beach

13 Crinum bakeri Engl.
planted along path
flowers white, segment edges somewhat crisped; buds acuminate; lobes longer than tube, filaments purple.

• 14 3 Centella asiatica (L.) Urb.
several patches in coconut plantation.
prostrate, rhizomes on surface of ground.

15 4 Boerhavia diffusa L.
common on rocky ground in coconut plantation.
~~common on rocky ground in coconut~~ prostrate; stems reddish, leaves dull; flowers pink.

16 Bougainvillea glabra Choisy spectabilis
rarely planted around houses.
shrub, floral bracts deep red.

✓ 17 2 Euphorbia hirta L.
several plants seen near landing.

18 Digitaria pruriens var. microtachne (Presl) Fosb.
abundant component of ground cover in coconut plantation.

• 19 3 Lepturus repens var. subulatus Forst.
abundant in ground cover in coconut plantation.

✓ 20 3 Bruguiera conjugata (L.) Merr.
one tree in pool in bomb crater, said to be planted.
tree 5 m. tall, flowers red. "jong"; "fruit used for glue".

1956 Marshall Is.

✓ 367 x1
3 Pseudoranthemum carruthersii
var atropurpureum (Bull) Fosb.
planted as ornamental

Ailuk atoll

shrub 3 m. tall, sterile,
leaves purple.

1956 Marshall Is.

Feb. 14 – Likiep Islet

✓ 36722 Hedyotis biflora (L.) Lam.
3 common in open coconut plantation. This specimen is from near seaward side.

✓ 23 Crinum latifolium
1 var. zeylanicum (L.) Hook. f. ex Trimen
planted in yard.

24 Peperomia obtusifolia (L.) A. Dietr.
planted in pots

✓ 25 Rhoeo ~~discolor~~ (L'Her.) Hance
2 spontaneous, spreading vigorously.

✓ 26 Cynodon dactylon (L.) Pers.
3 in lawn around church

A healthy plant of Agave sisalana growing at DeBrum house.

Barleria cristata growing in pot; white-flowered form, not very healthy.

Birds very rare
one Gygis alba, 1 Anous stolida, one Anous tenuirostris seen on seaward side.

27 Hippeastrum puniceum
commonly planted, flowering very well.

prostrate; chlorotic.

pedunde 0.7 m tall, slightly compressed; flowers white with purple stripes.
erect; leaves fleshy

leaves purple beneath; flowers pink; juice said to be irritating.
prostrate to ascending, sterile.

Asked ~~Father~~ Capelle DeBrum if any laora coconut disease known here. He did not know it as such. Mentioned a place where coconut trees looked very poor. People built a house among them and lived there for a time. The trees tended to pick up after people had lived there for a while.

pedunde hollow; flowering with or without leaves; corolla pale vermillion, strongly zygomorphic

1956 Marshall Is.

Feb. 15 - Gigen Islet

Beachrock extends along almost entire lagoon beach. the east end of this beach is prolonged somewhat into a sand lobe, from which a sandy beach extends about ~~third~~ way to other angle of islet. From about ~~third~~ way back extending to extremity of islet and around and along the ~~third~~ side is a remarkable series of beachrocks the dips of which is lagoonward and the strike perpendicular to the beach. In places, especially at the tip of the islet, the bedding is somewhat confused.

middle third of east beach lined with a wide zone of beachrock dipping toward lagoon

Back of the lagoon beach and parallel with it are two broad beach ridges of sand and small gravel. There have scattered vegetation, mostly shrubby, of Scaevola, guettarda, a little Messerschmidia. Boerhavia diffusa is common in the open places. B. ~~diffusa~~ ~~very~~ rare, tiny tufts of Lepturus repens, much

bare sand with a crofteum algal crust.

The Guettarda on these ridges is in very poor condition, dead at tips.

The soil on these ridges is Aboiya. Intest hole dug the surface layer is somewhat darkened and underlain by a pink unaltered layer. About 20" down is an irregular cementation (bag 318), not very firm, of similar material to the pink layer.

Along the east shore is a dense Scaevola scrub with the interior scrub and scrub forest approaching close to the edge here and there.

The interior well back of the beach ridges is a dwarfed Pisonia-Guettarda mixture with some Cordia. It is in most places somewhat open, and has a ground cover of Boerhavia diffusa with some Lepturus. A little Tacca, Cassytha, Achyranthes and Ipomoea tuba are to be seen. There are a few scattered coconut trees, especially toward the lagoon beach, and a very

few Pandanus.
At this season the Pisonia is nearly leafless but flowering.
The soil is mostly Lhirya but with some weakly developed Jemo under Pisonia but with no hardpan.
~~The interest~~
Between the reasonably well developed forest and the open scrub of the beach ridges is a belt of rather open scrub with Scaevola, guettarda and Cordia. In the opening are Portulaca lutea and Lepturus.
The interesting feature of this vegetation is its current condition. The Scaevola and Messerschmidia are the only common woody plants that seem to be in really normal condition.
The Pisonia is mostly leafless, as would be expected in the dry season in this climatic belt. However it has clumps of dark green leaves that almost resemble mistletoe from a

distance. The Cordia is mostly dead or almost so. The Guettarda in the forest is largely dead or very severely dying back from the tips. Where in the open it looks very much damaged - dead from the tips.
The Lepturus, common bare ground generally back of the beach ridges, is entirely dead except for a few tiny seedling tufts on the beach ridges.
Some coconut trees are dead.
Since this islet was most strongly showered by fall-out in March 1954, there may be some connection.
Gygis alba abundant.
One golden plover seen.
One bristle thighed curlew seen on east shore - very tame.
Pumice common but not abundant (bag 320).
Jemo soil profile under Pisonia:
0-3" raw humus, 10YR-3/1-3/2 (bag 319-1)
3-14" dark grey (10YR-7/2) salt and pepper colored fine sand with abundant coral gravel (bag 319-2)
(hole not dug deeper)

Flowers less almost dead.

1956 Marshall Is

Feb. 15 – Gegen Islet

36728		Boerhavia diffusa L. var. dominant in ground-cover in forest.	prostrate; leaves dull green above, white beneath; flowers white. (voucher for NROL sample #153)
✓	29 3	Boerhavia tetrandra Forst. rare in open sand and gravel	prostrate; leaves glossy green above, white beneath, thick; flowers pink. (voucher for NROL sample #155)
	30	Achyranthes canescens R. Br. rare in Pisonia forest	erect, 1 m. tall; flowers magenta.
✓	31 5	Pisonia grandis R. Br. dominant locally in forest and scrub.	spreading tree 3 m. tall, almost leafless; flowers green. (voucher for NROL sample #154)
	32 2	fungus on dead Pisonia stub	cream white.
	33	Calympores common on branches of trees.	
	34	Pandanus only 3 trees on island, in scrub forest.	tree 5 m. tall; fruit from ground beneath - immature fruiting heads on tree globose;
✓	35 5	Portulaca lutea Sol. local in sandy openings in interior scrub.	stems fleshy, ascending; flowers yellow, 1-1.5 cm. across; stamens 15-25. (voucher for NROL sample 152)
✓	36 2	Terminalia samoensis Rech. rare in beach scrub for rocky soil	sterile shrub 1 m. tall.
	37 1	Fleurya ruderalis (Forst.) Gaud. ex Wedd. rare in open scrub forest on rocky soil	appearing in very poor condition.

Animals - see p. 24

7 Cremobita pallata
Ailinginae Atoll, Lajpko Islet, interior Feb. 10

8 Gecko
Rongerik Atoll, Eniwetak Islet Feb. 11

9, 10, 11 Insects attracted to light in village (ants on ground in lighted house, but seemingly indifferent to light.) Utirik Atoll, Utirik Islet Feb. 13

12 Insects from Pisonia trunk
Lifo Islet Ailinginae Atoll Feb. 10.
(mosquito larvae in water in cavity in trunk)
(grasshopper on trunk probably merely accidentally).

13 Orb-weaving spider -
Ailinginae Atoll, Lifo Islet Feb. 10.

14 2 beetles and long-horned grasshopper - Ailinginae Atoll Lifo Islet. Feb. 10.

15 Cremobita
Rongelap Atoll, Gigen Islet Feb. 5

16 Xylocopa
stung a man on Kwajalein Atoll, Kwajalein Islet. Feb. 16.

17 do.
in cavity in old Nautilus shell on beach, Ailinginae Atoll, Lifo). Feb. 10.

1954 marshall Is.

Animals - ob see p. 24

7 Cenobita perlata
Ailinginae atoll, Lipko Islet, interior. Feb. 10

8 gecko
Rongerik atoll, Eniwetak Islet
Feb. 11

9, 10, 11 Insects attracted to lights in village (ants on ground in lights house, but seemingly indifferent to light.) Utirik atoll, Utirik Islet
Feb. 13.

12 Insects from Pisonia trunk
Lifo Islet, Ailinginae Atoll
Feb. 10.
(mosquito larvae in water in cavity in trunk)
(grasshopper on trunk probably merely accidentally)

13 orb-weaving spider -
Ailinginae atoll, Lifo Islet
Feb. 10.

14 2 beetles and long-horned grasshopper - Ailinginae Atoll. Lifo Islet, Feb. 10.

15 Cenobita
Rongelap atoll, Gigen Islet
Feb. 13

16 Scylocopa
stung a man on Kwajalein atoll, Kwajalein Islet. Feb. 16.

17 bee
in cavity in old Nautilus shell on beach, Ailinginae Atoll, Lifo I. Feb. 10.

137	Utirik	Digitaria
138	"	Boerhavia tetrandra
139	"	Leptaurus
140	"	Portulaca samoensis
141		Pisonia
142		Guettarda
143		Boerhavia diffusa
144		Thuarea
123	Lifo 9	Digitaria
124	"	9 grasses [illegible]
125	"	Thuarea
126	"	Pisonia
127	"	Boerhavia
128	"	Portulaca lutea
129	"	Leptaurus repens
130	"	Guettarda
145	Kibiel	Guettarda
146	"	Leptaurus
147	"	Pisonia
148	"	Boerhavia tetrandra
149	"	Digitaria
150	"	Thuarea
151	"	Portulaca samoensis
152	gegen	Guettarda
153	"	Boerhavia diffusa
154	"	Pisonia
155	"	Boerhavia tetrandra
156	"	Portulaca lutea
157	"	Leptaurus

1954 Marshalls

Animals - see p. 24

7 Coenobita perlata
Arlinginae Atoll, Lights Islet, interior. Feb. 11

8 Gecko
Rongerik Atoll, Eniwetak Islet
Feb. 11

9, 10, 11 Insects attracted to light in village (ants on ground in lighted house, but seemingly indifferent to light.) Utirik Atoll, Utirik Islet
Feb 13.

12 Insects from Pisonia trunk
Lib Islet Arlinginae Atoll
Feb. 10.
(mosquito larvae in water in cavity in trunk)
(grasshopper on trunk probably merely accidentally).

13 orb-weaving spider -
Arlinginae Atoll, Lib Islet
Feb. 10.

14 2 beetles and long-horned grasshopper - Arlinginae Atoll. Lib Islet. Feb. 10.

15 Coenobita
Rongelap Atoll, Aiger Islet
Feb. 15

16 Xylocopa
among a man in Kwajalein Atoll, Kwajalein Islet Feb. 16.

17 Do
in cavity in old Nautilus shell on beach, Arlinginae Atoll, Lib Islet. Feb. 10.

1956 Hawaiian Is.

Feb. 19 - Waikiki Beach, Honolulu

36738 Pseuderanthemum carruthersii
f. aureovariegata
planted as ornamental

shrub 2.5 m. tall. Leaves with yellow vein network; flowers white with cluster of purple dots in center, calyx & corolla lobes pastly fused.

1956 U.C.

Feb. 24 - Flight from San Francisco southward across southern San Joaquin Valley, Antelope Valley, Mojave Desert, Needles, Winslow Ariz, Albuquerque Amarillo, to Tulsa, Okla.

Trace of snow on tops of even low peaks in central coast ranges, much on those in Ventura Co.

In Mojave Desert one of desert mountain ranges gave a clue to the history and former topography of the typical sharply ragged isolated desert ranges. It has the common skeletonized form but with remnants of a gently arched plateau on top ridges. Indicates that these large mass be erosion remnants of gently rounded hill-like mountains a mountain masses.

I saw in Kaibab area and on all mountain masses of northern Arizona and New Mexico. In some

places affection of sun shows a surprising amount of surface water, evidently result of thawing.

Meteor Crater, near Winslow, has a rather squarish shape, seen from almost directly above.

An extensive dust storm extends from the Rio Grande Valley just west of Albuquerque eastward to Amarillo, Texas, and then faded out but some dust blowing almost to Tulsa.

Beautiful example of entrenched meanders just west of Tulsa - small streams.

Fosbergs insects from the Marshall Islands, February 1956.

1. Ants, collected in Guest house, Kwajalein Islet, Kwajalein Atoll.
(attracted by liqueur left in glasses.)

2. "Brown widow" spider, found in house of Cmdr. White, who says it is fairly common, but no bites reported recently. Kwajalein Islet, Kwajalein Atoll.

3. Long horned grasshopper nymph, found in bouquet of flowers on table, Likiep Islet, Likiep Atoll.

(4. crabs from Rongelap I., Rongelap Atoll).

5. Two grasshpppers attracted to lights, Rongelap Islet, Rongelap Atoll.

6. Ants and roach from ground, fly attracted by sweat, weevil picked up on clothing while going through brush, Rongelpp Islet, Rongelap ~~Ennau~~ Atoll.

(7. hermit crab from Ailinginae Atoll)

(8. Gecko, Eniaetok I., Rongerik Atoll).

9, 10, 11. Insects attracted to light in house in village, Uterik Islet, Uterik Atoll (ants on ground in house, seemingly indifferent to light).

12. Insects associated with Pisonia tree trunk (mosquito larvae in water in hole in trunk, grasshopper not especially associated with anything), Sifo Islet, Ailinginae Atoll.

13. Spider, Sifo Islet, Ailinginae Atoll.

14. Two beetles and adult grasshppper, Sifo Islet, Ailinginae Atoll.

(15. Hermit crab, top of beach, Gigen Islet, Rongelap Atoll.)

16. Xylocopa which stung a man on Kwajalein Islet, Kwajalein Atoll.

The numbers for crabs, geckos, etc., in () merely included to make the series complete, but are being taken to Washington. Sometimes two numbers are in same bottle, but I think from notes it will be easy to associate numbers with proper insects.

113	Kabella	Leptinum repens
114	"	Gaultheria
115	"	Boerhaavia tetrandra
116	"	Pisonia grandis
117		Portulaca lutea
118		algal crust
119		peat horizon
120	"	black soil horizon
121		pale coral sand horizon
122		

100	Rongelap I.	Digitaria
101	"	Thuarea involuta
102	"	Pisonia
103	"	Gaultheria
104		Leptinus repens
105		Boerhavia tetrandra
106		algal crust
107		Portulaca samoensis

108	Eniaetok	Gaultheria
109	"	Leptinus
110	"	Portulaca lutea
111	"	Digitaria
112		Pisonia grandis

131	Eniwetok	Pisonia
132	"	Gaultheria
133	"	Boerhavia tetrandra
134	"	Leptinus
135	"	Portulaca samoensis
136	"	Thuarea